

REMARKS

The application is believed to be in condition for allowance for the reasons set forth below.

Claims 5, 11, 12 and 14 are pending in the application.

Claims 5 and 11 were rejected as obvious over MOON et al. 5,719,085 in view of CHANG et al. 6,566,224. That rejection is respectfully traversed.

Claim 5 recites controlling a concentration of DCE within a range between 0.45 and 1.97% by weight.

The Official Action acknowledges that MOON discloses an oxygen/DCE ambient with an approximately 9% HCl to O₂ equivalency and offers CHANG in an attempt to overcome the shortcomings of MOON as to this feature.

Column 5, lines 16 to 19 of CHANG disclose an atmosphere of 99% oxygen and 1% dichloroethylene.

However, CHANG does not disclose that his concentration of DCE is % by weight.

Rather, as set forth above, CHANG discloses an atmosphere of 99% oxygen and 1% dichloroethylene. This terminology would be recognized by one of ordinary skill in the art as being directed to a volume of gas.

Based on the atomic weight of DCE being 96.95 and the atomic weight of oxygen being 16, results in 96.95×1 DCE and 16×99 oxygen, which yields $(96.95 \times 1 = 96.95) + (16 \times 99 = 3168)$

= 3264.95. The amount of DCE is $96.95/3264.95 = 0.029$ or approximately 3% by weight.

The % by weight of DCE of both CHANG and MOON is outside the recited range of 0.45 to 1.97. Accordingly, the recited range is not *prima facie* obvious.

Moreover, based on the disclosures of the references, it would not have been obvious to optimize the DCE to meet the recited range.

The Court of Customs and Patent Appeals has held that a particular parameter must first be recognized as a result-effective variable, i.e., a variable that achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

As disclosed on page 15, lines 4-12 of the present application, when the DCE concentration exceeds 1.97%, the threshold voltage rapidly drops to lower than 1.5V. See also Figure 13.

MOON discloses a concentration of DCE that is five times greater than the recited range and, in any event, does not disclose a relationship between the concentration of DCE and a threshold level of a transistor.

CHANG discloses a concentration that is at least 50% more than the disclosed range, and on column 8, lines 8-20 in

conjunction with Figure 16, discloses a relationship between transistor width and threshold voltage.

Neither MOON nor CHANG disclose a relationship between the concentration of DCE and a threshold level of a transistor. Thus, in view of the references, DCE does not produce a recognized result with respect to threshold voltage, and therefore, the recited range would not have been obvious.

In addition, the motivation offered in the Official Action for combining the references is not sufficient to motivate one of ordinary skill to combine the references in the manner suggested.

Column 5, lines 20-25 of CHANG disclose that oxidation begins to occur at about 950°C, but rounding of the corners does not occur until higher temperatures. Clearly, CHANG relies on the temperature being above 950°C to perform his oxidation, while MOON performs his oxidation at 920°C. Selecting only the DCE concentration during oxidation, while ignoring the temperature requirements of CHANG is impermissible hindsight reasoning that does not amount to *prima facie* obviousness.

Based on the above, it is apparent that there is no motivation to combine the references in the manner suggested and in any event, the references do not disclose each of the recited limitations.

Claims 12 and 14 were rejected as unpatentable over MOON et al. in view of CHANG et al. and further in view of CHAU et al. 5,891,809. That rejection is respectfully traversed.

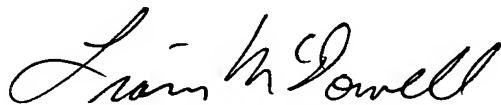
CHAU is only cited for the disclosure of bubbling nitrogen through DCE. CHAU does not disclose what is recited in claims 5 and 11. As set forth above, MOON in view of CHANG does not disclose what is recited in claims 5 and 11. Since claims 14 and 12 depend from claims 5 and 11, respectively, and further define the invention, claims 12 and 14 are believed patentable at least for depending from an allowable independent claim.

In view of the foregoing remarks, it is believed that the present application is in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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